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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,756	07/16/2003	John C. Calhoon	MSFT-2524/304593.2	8963
41505	7590	12/23/2005	EXAMINER	
WOODCOCK WASHBURN LLP (MICROSOFT CORPORATION)			CHUO, TONY SHENG HSIANG	
ONE LIBERTY PLACE - 46TH FLOOR			ART UNIT	
PHILADELPHIA, PA 19103			PAPER NUMBER	

1746

DATE MAILED: 12/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/620,756		CALHOON, JOHN C.	
	Examiner		Art Unit	
	Tony Chuo		1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 17-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 16 is/are rejected.
- 7) ☒ Claim(s) 14 and 15 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>8/14/03</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-16, drawn to a fuel cell system, classified in class 429, subclass 22.
 - II. Claims 17-28, drawn to a method for operating the fuel cell, classified in class 429, subclass 13.
2. The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the apparatus as claimed can be used to practice another and materially different process. The fuel cell system as claimed can be used to just control the temperature and pressure of the fuel cell.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

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5. During a telephone conversation with Joseph Oriti on 12/16/05 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-16. Affirmation of this election must be made by applicant in replying to this Office action. Claims 17-28 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4-6, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Fuglevand et al (US 2002/0031692). Regarding claim 1, the Fuglevand reference teaches a fuel supply "23", a fuel cell "14", a fuel sensor "58", a control system "30", and a processing system "24" comprising a fuel detection circuitry "64" and a communication port "36" for providing fuel cell data from fuel cell to processing system wherein the fuel cell data comprises at least one of determined fuel cell parameters and control system "30" is coupled to remote device "24" via communication port "36". ^(Figure 2) Regarding claims 4 and 5, it teaches a current sensor "94" for sensing an electrical current provided by the fuel cell to the processor and a voltage sensor "92" for sensing a voltage provided by the fuel cell to the processor (See Figures 2 and 4). Regarding claim 6, it teaches a fuel cell system wherein the fuel comprises hydrogen gas (See page 3, paragraph 47).

Regarding claim 8, it teaches a fuel cell system comprising a proton exchange membrane fuel cell (See page 2, paragraph 40).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2, 7, and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuglevand et al (US 2002/0031692) in view of Sato et al (US 5658681). Regarding claim 2 and 12, the Fuglevand reference is applied to claims 1, 4-6, and 8 for the reasons stated above. However, the reference does not expressly teach a temperature sensor and a flow meter. The Sato reference does teach temperature sensors "46a" "46b" "46c" that senses the temperature of fuel cell and a gas flow meter "36" that is coupled between the fuel tank and the fuel cell for measuring the fuel consumption and providing a fuel consumption signal indicative of consumed amount of fuel to control system (See Figure 1). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the Fuglevand fuel cell system to include a temperature sensor and flow meter in order to accurately determine the amount of fuel remaining in the fuel tank.

9. Regarding claim 7, the Fuglevand reference is applied to claims 1, 4-6, and 8 for the reasons stated above. However, the reference does not expressly teach a fuel that

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is a liquid fuel. The Sato reference does teach a fuel, methanol "22", that is a liquid fuel (See Figure 1). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the Fuglevand fuel cell system to include a liquid fuel because liquid fuel is more easily stored than gaseous fuel.

10. Regarding claim 13, the Fuglevand reference is applied to claims 1, 4-6, and 8 for the reasons stated above. However, the reference does not expressly teach a controller that determines the remaining amount of fuel in fuel cell in accordance with consumed amount of fuel, determines the remaining amount of fuel cell power in accordance with remaining amount of fuel, determines an electrical consumption rate by the computer operating system, and transmits values indicative of remaining power and electrical consumption rate from fuel cell to computer operating system via the data bus. The Sato reference does teach a control system "66" that determines the remaining amount of fuel based upon the fuel cell output value and electrical consumption rate of the operating system "64" and also transmits the values indicative of the remaining amount of power and electrical consumption rate from the fuel cell to the computer operating system (See column 6, lines 46-59). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the Fuglevand fuel cell system to include such a control system in order to determine the amount of power remaining to operate the computer operating system.

11. Claims 3 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuglevand et al (US 2002/0031692) in view of Leboe (US 6893755). The Fuglevand reference is applied to claims 1, 4-6, and 8 for the reasons stated above. However, the

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reference does not expressly teach a pressure sensor and a controller that determines the remaining amount of fuel in accordance with sensed temperature, pressure and volume of fuel tank. The Leboe reference does teach a pressure sensor "16" and a fuel supply controller "24" that determines the remaining amount of fuel based upon the temperature, pressure and volume (See Figure 4, column 9, lines 1-20). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the Fuglevand fuel cell system to include a pressure sensor and controller in order to accurately determine the amount of remaining fuel.

12. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fuglevand et al (US 2002/0031692) in view of System Management Bus Specification (Revision 1.1). The Fuglevand reference is applied to claims 1, 4-6, and 8 for the reasons stated above. However, the reference does not expressly teach a system where data is formatted in accordance with at least one of an advanced configuration and power interface specification, an inter-IC bus specification, a system management bus specification, and a smart battery charger specification. The System Management Bus Specification teaches a system that uses System Management Bus to connect a wide variety of power-related devices including fuel cells (See page vi). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the Fuglevand fuel cell system to include a system where the data is formatted in accordance with a system management bus specification in order to warn the user of low fuel cell power and/or shutting down the system if needed.

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13. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuglevand et al (US 2002/0031692) in view of Gamo et al (US 5976725). The Fuglevand reference is applied to claims 1, 4-6, and 8 for the reasons stated above. However, the reference does not expressly teach a processing system that is a laptop computer with a battery pack and a fuel cell that is functionally compatible and interchangeable with battery pack. The Gamo reference does teach a laptop computer that includes a fuel cell that is functionally compatible and interchangeable with the battery pack (See Figure 22 and 23). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the Fuglevand fuel cell system to include a laptop computer as the processing system and to modify the fuel cell such that it is functionally compatible and interchangeable with the battery pack in order to efficiently power the laptop and simultaneously process the data from the fuel cell.

Allowable Subject Matter

Claims 14 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Regarding claim 14, the Fuglevand reference in view of the Sato reference teaches a controller that determines the remaining amount of fuel in fuel cell, but they do not expressly teach a operating system that determines an amount of remaining time for fuel cell to provide power to an associated computer operating system. Regarding claim 15, the Fuglevand reference in view of the Sato reference teaches a controller that determines the remaining amount

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of fuel in fuel cell, but they do not expressly teach an operating system that renders the amount of remaining time via the processing system.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Chuo whose telephone number is (571) 272-0717. The examiner can normally be reached on M-F, 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on (571) 272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*** TC 12/20/05

A handwritten signature in black ink, appearing to read 'Michael Barr', with a long horizontal stroke extending to the left.

**MICHAEL BARR
SUPERVISORY PATENT EXAMINER**